Telemetry Requirements to Support CAISO Compliance with Reliability Standard BAL-003

The California ISO is proposing to establish new telemetry points for resources in connection with its efforts to comply with North American Electric Reliability Corporation Reliability Standard BAL-003-1.1 - Frequency Response and Frequency Bias Setting. These requirements include the following new telemetry points for generating units: (1) droop setting; (2) governor blocking status (on/off); (3) deadband setting in mHz for governor or frequency responsive device; and (4) operational unit ramp rate (MW/min) programmed in the generating unit's distributed control system.

Under the ISO's tariff and applicable interconnection agreements, certain resources have an obligation to provide telemetry as well as primary frequency response capabilities. The ISO's new telemetry requirements will apply to any of the following resources:

- Participating Generators equipped with a governor that are 10 MW or greater;
- Resources certified to provide regulation or spinning reserve; and
- Resources, synchronous or non-synchronous, that have a requirement to comply with Federal Energy Regulatory Commission Order No. 842 and are subject telemetry requirement sunder the ISO tariff.

Participating Generators equipped with a governor that are 10 MW or greater

The ISO tariff requires participating generators equipped with a governor must respond immediately and automatically outside a deadband in proportion to frequency deviations to help restore frequency to the scheduled value.[1] Participating generators must set the governor droop for each generating unit with governor controls no higher than 4 percent droop for combustion turbines and 5 percent droop for other technology types; with a deadband no larger than +/- 0.036 Hz. Participating Generators may not inhibit the real power response of their generating units with governor controls by any means that would override the governor response except as necessary to address physical operational constraints for reasons that include ambient temperature limitations, outages of mechanical equipment or regulatory considerations. The tariff also requires that each participating generator, at the direction of the ISO, provide telemetry consistent with the ISO tariff.[2] Participating generators with a rated capacity of less than 10 MW are exempt from this requirement unless the participating generator is certified to provide ancillary services.[3]

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1 ISO tariff section 4.6.5.1.

2 ISO tariff section 7.6.1; *see also* Business Practice Manual for Direct Telemetry, Section 2.1.

Resources certified to provide regulation or spinning reserve

Resources certified to provide ancillary services in the ISO's markets must comply with telemetry requirements established by the ISO by means of equipment and/or software that can interface with the ISO's energy management system to supply telemetered real-time data.[4] Under the ISO's tariff, resources providing regulation and spinning reserve must be frequency responsive. Section 8 and Appendix K to the ISO tariff identifies certification requirements for resources providing regulation and spinning reserve. These certification requirements include that resource must respond immediately and automatically in proportion to frequency deviations to help restore frequency to the scheduled value.[5] Under the ISO's tariff, regulation up may substitute for spinning reserve.[6] Accordingly, resources certified to provide regulation up must also respond immediately and automatically in proportion to frequency deviations to help restore frequency to the scheduled value.

Resources that are required to comply with FERC Order No. 842 and/or subject to telemetry requirements under the ISO tariff

Resources, synchronous or non-synchronous, subject to an interconnection agreement executed on or after May __ 2018, or that the interconnection customer requested that ISO file as unexecuted on or after that date must provide primary frequency response capability.[7] Having this capability allows the resource to respond to frequency deviations when operating below its maximum capability for a given irradiance level or wind speed. Consistent with the ISO's tariff requirements, all such resources that are 10 MW or greater or that are eligible intermittent resources of any size must provide the new telemetry data. Eligible intermittent resources are not exempt from ISO telemetry requirements based on their MW size and must provide the new telemetry data.

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5 Section 8.3.4 and Appendix K, Part B.

6 Section 8.2.3.5.

7 *Essential Reliability Services and the Evolving Bulk-Power System—Primary Frequency Response,* Order No. 841, 162 FERC ¶ 61,128 (2018).

Frequently Asked Questions

1. Do the ISO's requirements apply to new and existing generators?

Yes. These requirements apply to existing resources and new resources that are subject to telemetry requirements under the ISO tariff.

2. Do these new requirements apply to existing generators with older technologies that do not provide primary frequency response capability?

Yes. These requirements apply to all generators subject to telemetry requirements as specified in the ISO's Business Practice Manual for Direct Telemetry. Generators without primary frequency controls should set the governor blocking status to yes to inform the ISO's Energy Management System that they do not have primary frequency response capability.

3. Will the ISO provide funding for generators to meet these requirements?

No. Generator owners are responsible for the costs of complying with ISO telemetry requirements.

4. Do these new telemetry requirements apply to resources within metered subsystems?

Yes. These new telemetry requirements apply to resources in metered subsystems that meet the criteria identified above.

5. Do these new telemetry requirements apply to Qualifying Facilities?

Yes. These new telemetry requirements apply to Qualifying Facility resources that meet the criteria identified above and have gone through a QF conversion process with the ISO.

6. Will the ISO allow generators to configure their telemetry at the generating facility level as opposed to the generating unit level?

Yes. The ISO will work with scheduling coordinators and resource owners to ensure resources can configure their telemetry requirements to meet the objectives of the ISO tariff. If necessary, this effort may include exploring options to provide telemetry at an aggregate facility level so that the ISO's energy management system receives information on the aggregate capabilities of generating units at a facility level. The ISO expects to rely on resource owners' experience with other transmission providers to

ensure it can obtain information on the aggregate capabilities of generating units at a facility level.

7. If a generating unit has a physical operational constraint that requires it to inhibit its real power response in a manner that would override the generating unit's governor response, does the participating generator need to comply with the telemetry requirements.

Yes, the participating generator still has a requirement to provide telemetry data. The ISO expects that the participating generator will set its governor blocking to yes to inform the ISO's Energy Management System of the constraint to the resource's primary frequency response capability.

8. What is the implementation schedule to configure and provide this new telemetry data to the ISO?

The ISO plans to publish language in its Business Practice Manual for Telemetry in January 2021. The ISO has developed the following implementation schedule for resources to implement the new telemetry requirements.

Resource MW size	Implementation target
>500MW	6/15/2021
>400MW <=500MW	7/31/2021
>300MW <= 400MW	8/31/2021
>200MW <= 300MW	10/30/2021
>100MW <=200MW	1/30/2022
0.5MW <= 100MW	5/31/2022